"Pace, Don't Race – Planning Workouts to Enhance Performance"
University of South Dakota
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What Makes a Man Run?
"People can't understand why a man runs. They don't see any sport in it.   Argue it lacks the sight and thrill of body contact.
Yet, the conflict is there, more raw and challenging than any man
versus man competition.
For in running it is man against himself, the cruelest of opponents.
The other runners are not the real enemies. His adversary lies within him, in his ability, with brain and heart to master himself and his emotions."
- Glenn Cunningham

Percy Cerutty, creator of the Stotanic philosophy, said, "Once you've tried and done your best, you can look back and feel satisfied. It's far better to know you've tried and perhaps not succeeded than to look back and wonder whether you should have really tried harder."

"Hard things take time to do. Impossible things take a little longer." – Percy Cerutty

Basic Themes of Training
1. Moderation and Consistency
2. Hard – Easy Approach (Magic #3)
3. There are NO Timeouts in Cross Country
4. The Slower One Runs, The More Playing Time One Gets
5. The Upside Down Pyramid
6. The Long Run – Most Important Workout of the Week
7. What Runs Up Must Run Down – Hill Running
8. The 40 minute rule – Risk vs. Reward
9. The 40 second rule
10. Train Don't Strain – Pace Don't Race
11. Two-A-Days as Active Recovery
12. Success Breeds Success
13. Have A Vision – Goal Setting and Achieving
14. Most Programs Know The Ingredients, Few Have The Right Recipe
15. A Chapter of Proverbs A Day

Designing the Training Plan
1. **When designing the training plan work backwards on your calendar from the date of the last competition back to the date of your first planned workout.**
2. **Place all your scheduled competitions on the calendar.**
3. **Decide which meets that you want to emphasize the most during the season.**

4. Define your competitive needs – "What will it take to win the Conference Meet, State Meet, etc…?" Know your competition. Know your situation.
5. What types of workouts will your student/athlete(s) have to successfully perform in order to achieve their seasonal goals?
6. Design workouts from General to Specific and Simple to Complex.
7. High Volume with Low Intensity to Low Volume with High Intensity
8. What other ingredients do you need in creating this recipe?

The Training Ingredients
A. Defining the Ingredients
1. Strength is the ability to produce large amounts of force.
2. Speed is the ability to move the entire body quickly.
3. Flexibility is the ability to display a high range of movement.
4. Coordination is the ability to perform motor skills with precision.
5. Endurance is the ability to perform large workloads and resist fatigue.
6. VO_2 Max is the maximal rate of oxygen consumption one is capable of achieving. Also called aerobic power.

The Training Systems
1. The Anaerobic Alactic Energy System or Creatine Phosphate System is suitable for single or continuous short bursts of energy of around 7-10 seconds.
2. The Aerobic Energy System produces the largest amounts of energy for extended periods of time, although at the lowest intensity (below the lactate threshold). So at the start of exercise the body cannot deliver oxygen to the muscles fast enough to initiate the complex chemical reactions which occur during aerobic metabolism. Therefore the body relies on anaerobic processes for the first couple of minutes.
3. The Anaerobic Glycolytic System provides energy for a longer duration than the Anaerobic Alactic System, between 10-90 seconds, such as what would be required for a 100m swim, or a 400-800m run. Energy is derived from the fast break down of glucose from glycogen and blood sugar. Glycogen is stored in the liver and the muscles. When glycogen is broken down, it produces ATP and pyruvic acid. This process is called anaerobic glycolysis because the glycogen isn't fully broken down, but leaves a by product called Lactic Acid. When lactic acid accumulates in the muscles it results in muscle fatigue and weakness.

Calculating VO_2 Max
1. Vigil Protocol: Run one mile to exhaustion divided by .91 = x (t) [per mile pace = x]
2. Astrand Protocol: Run two miles at exhaustive pace = x (t) [per mile pace = x/2]
3. Daniels Formula and McMillan have their own charts where you simply have to plug in your athlete's 3200 meter time trial results.

4. Aerobic Threshold Pace occurs at about 70% of VO$_2$ Max, while Lactate Threshold pace occurs at about 85% of VO$_2$ Max in experienced runners.

The 800 meters – Sample Workouts
1. 2 x 8 x 200m. @ Race Pace w/a 200m. jog recovery between reps & w/a 400m. jog between sets (LT)
2. 3 x 4 x 200m. @ Race Pace w/a 60 sec. jog recovery between reps & w/a 6 min. jog recovery between sets (LT)
3. 6-8 x 400m. @ Race Pace w/a 4-5 min. jog recovery between reps (LT) - Bridge Workout for Success at 800 meters and 1500 meters
4. 2 x 600m. @ Race Pace w/a 15 min. jog/walk recovery between reps (RT)
5. Kosmin 800 Meter Test 2 x 60 sec. Fast (As Far As You Can) w/a 3 min. rest between sets Take 217.4 – (Distance Run x .119) = Predicted Time.

The 1500/1600 meters – Sample Workouts
1. 3 x 5 x 300m. @ 1500 Race Pace w/a 100m. jog recovery between reps & a 400m. jog recovery between sets
2. 8 x 400m. @ 5 seconds faster than 1600m. Race Pace w/a 4 min. jog recovery between reps (LT)
3. 12 x 400m. @ 1600 Race Pace w/a 300m. jog recovery between reps (LT)
4. 5 x 600m. @ 1600 Race Pace w/a 5 min. jog/walk recovery between reps (LT)
5. 2 x 1200m. @ 1600 Race Pace w/15 min. jog/walk recovery between reps (RT)
6. 1x1200m @ 1600 Race Pace w/15 min. jog/walk recovery and 3 x 300m. @ 800 Race Pace w/a 3 min. jog recovery between reps (RT)

The 3000/3200 meters – Sample Workouts
1. 4 x 5 x 300m. @ 3000 Race Pace w/a 100m. jog recovery between reps & a 400m. jog recovery between sets
2. 16 x 400m. @ 3200 Race Pace w/a 200m. jog recovery between reps (LT)
3. 2 x 5 x 600m. @ 3000 Race Pace w/a 300m. Jog recovery between reps and w/a 5 min. jog/walk recovery between reps (LT)
4. 2 x 2000m. @ 3000 Race Pace w/15 min. jog/walk recovery between reps (RT)
5. 6 x 1000m. @ 3000 Date Pace w/Equal jog/walk recovery between reps (VO$_2$ Max)

The 5000 meters – Sample Workouts
1. 24 x 400m. @ 5000 Race Pace w/a 100m. jog recovery between reps (LT)
2. 2 x 3000m. @ 5000 Race Pace w/15 min. jog/walk recovery between reps (RT)
3. 5-8 x 1000m. @ 5000 Race Pace w/2-3 minutes jog/walk recovery (LT)
4. 4 x 1600m. @ 3200 Date Pace w/Equal jog/walk recovery between reps (VO$_2$ Max)

Sample 7-Day Training Cycle
Day 1: Long Run at/under 70-75% VO$_2$ Max (Distance = 20-25% of weekly mileage)
Day 2: Speed (Flying 30's or Hills)

Day 3: VO$_2$ Max (800-3200m. Interval Workouts @ 3000/3200m. Date Pace with Equal Recovery and total volume doesn't exceed 8000 meters.)

Day 4: Semi-Long Run at/under 70-75% VO$_2$ Max (Distance = 15-20% of weekly mileage)

Day 5: 40 min. Recovery Run at/under 70% VO$_2$ Max

Day 6: 5K Race or Tempo Run (20-40 minutes of continuous running at 80-90% VO$_2$ Max)/Anaerobic Threshold Intervals (at 80-90% VO$_2$ Max with efforts ranging from 2-6 minutes and with usually 30-90 seconds rest or up to 3 minutes.)

Day 7: 40 min. Recovery Run at/under 70% VO$_2$ Max

Bill Bowerman and Steve Prefontaine

A teacher is never too smart to learn from his pupils. But while runners differ, basic principles never change. So it's a matter of fitting your current practices to fit the event and the individual. See, what's good for you might not be worth a darn for the next guy.

God determines how fast you're going to run; I can help only with the mechanics.

I am well beyond the average age, so every day is a bonus and I am grateful for.

The magic is in the man, not the 100 miles.

There's no such thing as bad weather, just soft people.